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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,994	12/20/2001	John Border	83858CEB	2349

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06/19/2003

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EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,994

Applicant(s)

BORDER ET AL.

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - Page 1, paragraph 1, information regarding the related applications should be provided, e.g., serial number of the U.S. applications and respective filing dates.Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-7, 10-13, 20-21 are rejected under 35 U.S.C. 102(a) as being anticipated by Miyawaki et al. (U.S. 6,329,265 B1).

Miyawaki et al. discloses a method for making a semiconductor device during which fiducial (alignment) marks (5, Fig. 4) are formed, the method including forming at least one optical feature (alignment marks 3, which can be a deep groove or an oxide film such that they can be detected by a light beam based on the difference in refractive index of the substrate 1, Fig. 17) (col. 12, lines 12-19) adjacent said micro-sized article (semiconductor device) at a predetermined location on a first surface (first major surface PS) of the transparent medium (substrate 1), altering at least a portion of the second

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surface of the transparent medium (by coating the second major surface SS of the substrate 1 with a layer of thermal oxide film 6), and directing a collimated beam of light (Fig. 17) onto said at least one optical feature, such that the exact location of the alignment mark (5) can be determined on the opposite surface and forming thereby the at least one fiducial mark (5).

Miyawaki et al. further teaches :

- the collimated beam of light being produced by a laser (He-Ne laser);
- the optical feature having a predetermined configuration (alignment marks 3 can be a deep groove or an oxide film such that they can be detected by a light beam),
- the predetermined configuration being linear (Fig. 9),
- the predetermined configuration being crossed linear (Fig. 6),
- the altering step including ablating (etching) at least a portion of the second surface,
- the step of forming the at least one optical feature including the step of indentation (alignment mark 3 being a deep groove),
- the predetermined configuration being a diffractive element (alignment mark 3 having an impurity concentration profile different from that of the surrounding region) (col. 12, lines 12-25),
- the step of forming the fiducial mark (alignment mark 5) including the step of lithographic printing (col. 18, lines 9-18).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki et al. in view of Ochi et al. (U.S. 5,771,085).

Miyawaki et al. discloses all the basic limitations of the claimed invention except for the circular shape of the optical feature of fiducial mark.

Ochi et al., an acknowledged prior art, discloses an LCD device with overlapped alignment marks (25, 26) that can have different shapes, e.g., linear, cross-shaped or circular (Figs. 7, 9, 13).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the alignment mark in a circular shape as taught by Ochi et al. in the device of Miyawaki et al. The motivation for doing so would have been to allow the two alignment marks to be accurately overlap-alignment positioned on the opposite surfaces of the substrate.

6. Claims 8-9 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki et al. in view of Weirauch (U.S. 5,320,007).

Miyawaki et al. discloses all the basic limitations of the claimed invention except for the optical feature being formed by diamond milling or turning.

However, it is well known in the art that the surface grinding can be performed by diamond milling or turning as evidenced by Weirauch.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the alignment marks (3) in the device of Miyawaki et al. using either the diamond milling or turning method as taught by Weirauch. The motivation for doing so would have been to remove a desired amount of material to form a recess in a flat substrate.

7. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki et al. in view of Dombrowski et al. (U.S. 5,853,800).

Miyawaki et al. discloses all the basic limitations of the claimed invention except for the coating layer (6) being vacuum, spin or dip coated.

However, various methods of coating a surface of a substrate are well known in the art as demonstrated by Dombrowski et al., which discloses a method for coating an optical substrates where any of the dip-coating, spin-coating or vacuum-coating method can be used for preparing water-repellent coating on optical substrates.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use any of the diverse methods of coating as taught by Dombrowski et al. in the device of Miyawaki et al. The motivation for doing so would have been to form a thin coat of material on the surface of the substrate without corrosively decompose the optical substrate.

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C ntact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

June 11, 2003